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West Coast Region

Agenda Item F.2.a
Supplemental NMFS Presentation 1
November 2020

NMFS Southern Resident Killer Whale Report

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Purpose

- NMFS' Supplemental Report 1 is designed to inform the public and Council of the range of effects from the Recommendations the Council adopted at its September 2020 meeting.
- While the Workgroup was busy with the workload assigned to it by the Council, NMFS thought it important to be able to contrast the range adopted, so is providing this report to disclose differences among the range for the Council's consideration as it develops its preferred alternative.
  - This type of contrast is typically part of control rule development, as it provides important information on performance metrics of interest to the Council and is important to NMFS' subsequent National Environmental Policy Act analysis.

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Organization

- Section 1 provides background information, purpose and need, and describes the Proposed Action.
- Section 2 describes the alternatives.
- Section 3 describes the affected environment.
- Section 4 analyzes the potential environmental impacts of the alternatives.
- Section 5 lists the references cited in the document.
- Appendix A describes the data modeling used for Section 4.

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Comparisons

- We provide comparisons to the No-Action Alternative
- Given there are three recommendations, accompanied with multiple management responses, we provide comparisons across different threshold strategies (*e.g.*, annual vs. geometric mean use)
- And management responses (*e.g.*, hard dates of closure vs. limits to when catch could occur)
- We utilize the data series from the Workgroup's Risk Assessment to assess effects on the metrics across our Alternative.
  - This is because we expect the range of abundances experienced over this data series is likely representative of the range of abundances we expect to see in future years

Three Alternatives

- We evaluated a range of Alternatives:
  1. No –Action (Management Under the Current FMP Provisions)
  2. Alternative 2 (Mid-option, in between the No-Action and Alternative 3)
  3. Alternative 3 (Highest threshold, with most restrictive fishery management options determined)

Table 2-3, and text from pgs 23 - 25 explain why certain elements of the Council's range of Recommendations, but notably, the threshold values of 813k and 874k, were not analyzed further in the report.

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Three Alternatives (example)

- Using Alternative 2 (threshold of 966k)
- Pg 18:

Table 2-1. List of SRKW Workgroup management responses implemented in Alternative 2.

Management Response	Description	Implemented in Alternative 2
1a	Further limit NOF non-treaty Chinook salmon quotas	X
2	Attain NOF non-treaty quota incrementally over time	X
3a	Closure of Columbia River Control Zone including spatial expansion from Jan 1 – Jun 15	X
3b	Closure of Grays Harbor Control Zone including temporal expansion	X
4	NOF non-treaty start/end time adjustments	
5a	Delay opening OR SOF Troll until April 1	X
5b	Close OR KMZ October 1 through March 31	X
5c	Cape Falcon to Cape Meares closure	
6a	Close CA KMZ and Monterey areas October 1 through March 31	X
6b	Close Klamath River Control Zone including expansion	X

These responses are included in Alt 3 (see Table 2-2)

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Three Alternatives (example)

- We compare the threshold (e.g., 966k for Alt 2) in each Alternative and associated management measures retrospectively by timestep across three different periods to what actually occurred
- Pg 30: baseline

Table 3-4. Average Chinook salmon abundance after fishery removals in each TS (season) in Washington, Oregon, and California (from Appendix A).

Catch Area	Season	Time Period		
		Abundance 1993-2000	Abundance 2001-2008	Abundance 2009-2016
Washington	TS1 (Oct-Apr)	979,163	1,575,319	1,759,133
	TS2 (May-Jun)	453,127	718,399	873,282
	TS3 (Jul-Sep)	459,671	810,789	1,096,082
Oregon	TS1 (Oct-Apr)	1,181,570	1,513,869	1,608,645
	TS2 (May-Jun)	677,291	874,923	900,031
	TS3 (Jul-Sep)	616,849	785,842	884,908
California	TS1 (Oct-Apr)	773,517	811,642	611,457
	TS2 (May-Jun)	540,955	618,531	438,933
	TS3 (Jul-Sep)	287,516	350,098	234,277

*Footnotes: Washington abundances correspond with Council NOF area, Oregon abundances correspond with OR coastal waters (Cape Falcon, OR to Horse Mountain, CA), and California abundances correspond to all waters couth of Horse Mountain, CA.

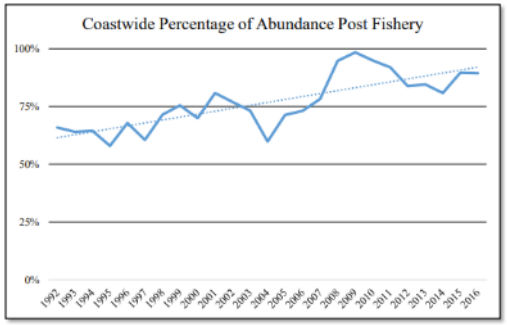

Figure 3-2. Coastwide (EEZ) 1992-2016 trend in percent of Chinook salmon adult abundance remaining after PMFC ocean salmon fisheries (from October through the following September) (reproduced from (PFMC 2020a)).

See Table 4-1, pg 59 for current FMP management provisions projected retrospectively

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Three Alternatives (example)

- As part of our retrospective analysis we determine the number of years where abundance was below the Alternative's threshold
- Pg 65:

Table 4-3. Postseason estimates of TS1 (October 1) Chinook salmon abundance in the NOF area and whether a given year was above or below the Alternative 2 abundance threshold of 966,000 (reproduced from Appendix A, rounded to nearest 1,000).

Year	NOF TS1 Abundance	Threshold Determination
1992	1,038,000	ABOVE
1993	1,080,000	ABOVE
1994	813,000	BELOW
1995	1,023,000	ABOVE
1996	1,035,000	ABOVE
1997	1,144,000	ABOVE
1998	861,000	BELOW
1999	1,047,000	ABOVE
2000	1,037,000	ABOVE
2001	1,922,000	ABOVE
2002	2,135,000	ABOVE
2003	1,961,000	ABOVE
2004	1,970,000	ABOVE
2005	1,479,000	ABOVE
2006	1,279,000	ABOVE
2007	947,000	BELOW
2008	1,254,000	ABOVE
2009	1,063,000	ABOVE
2010	1,941,000	ABOVE
2011	1,523,000	ABOVE
2012	1,553,000	ABOVE
2013	2,440,000	ABOVE
2014	1,976,000	ABOVE

Period with poorer ocean conditions (lower abundances)

Period with better ocean conditions (higher abundances)

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Three Alternatives (example)

- And evaluate how the fishery is affected by management responses
- Pg 67:

Table 4-4. Average Chinook salmon catch by TS (season) in Washington, Oregon, and California if applying Alternative 2 retrospectively (from Appendix A).

Catch Area	Season	Time Period								
		Catch 1993-2000	Diff. from Alt 1	Diff. from Alt 3	Catch 2001 - 2008	Diff. from Alt 1	Diff. from Alt 3	Catch 2009-2016	Diff. from Alt 1	Diff. from Alt 3
Washington	TS1 (Oct-Apr)	1,582	0	0	2,265	0	0	1,891	0	0
	TS2 (May-Jun)	10,560	-319	3,333	38,360	-282	866	44,514	0	0
	TS3 (Jul-Sep)	10,320	319	-3,333	50,594	282	-866	56,932	0	0
	Annual (Oct-Sep)	22,462	0	0	91,219	0	0	103,337	0	0
Oregon	TS1 (Oct-Apr)	16,446	-5	10	51,560	-3	1	11,816	0	0
	TS2 (May-Jun)	51,419	0	0	72,014	0	0	32,489	0	0
	TS3 (Jul-Sep)	74,280	0	0	108,619	0	0	51,342	0	0
	Annual (Oct-Sep)	142,145	-5	10	232,193	-3	1	95,647	0	0
California	TS1 (Oct-Apr)	42,106	-2,241	4,234	21,054	0	99	10,264	0	0
	TS2 (May-Jun)	284,094	0	0	135,417	0	0	63,130	0	0
	TS3 (Jul-Sep)	232,427	0	0	195,019	0	0	83,947	0	0
	Annual (Oct-Sep)	558,627	-2,241	4,234	351,489	0	99	157,341	0	0

*Footnotes: Washington catch amounts correspond with Council NOF fisheries, Oregon catch amounts correspond to Council fisheries between Cape Falcon, OR and Horse Mountain, CA, and California catch amounts correspond to fisheries south of Horse Mountain, CA.

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Three Alternatives (example)

- Our modeling also allows us to evaluate what abundances would be after fishery management responses are implemented retrospectively

- Pg 70:

Table 4-5. Average Chinook salmon Abundance after fishery removals, by TS (season), in Washington, Oregon, and California if applying Alternative 2 retrospectively (from Appendix A).

Catch Area	Season	Time Period								
		Abundance 1993-2000	Diff. from Alt 1	Diff. from Alt 3	Abundance 2001 - 2008	Diff. from Alt 1	Diff. from Alt 3	Abundance 2009-2016	Diff. from Alt 1	Diff. from Alt 3
Washington	TS1 (Oct-Apr)	988,764	255	-489	1,585,370	0	-11	1,760,845	0	0
	TS2 (May-Jun)	458,183	183	-863	731,757	67	-272	877,236	0	0
	TS3 (Jul-Sep)	488,632	98	-19	846,703	-10	71	1,111,859	0	0
Oregon	TS1 (Oct-Apr)	1,182,824	753	-1,466	1,518,268	8	-33	1,609,776	0	0
	TS2 (May-Jun)	678,153	644	-1,574	882,187	41	-182	902,216	0	0
	TS3 (Jul-Sep)	628,988	569	-961	801,473	-7	21	891,397	0	0
California	TS1 (Oct-Apr)	774,877	1,131	-2,169	812,737	3	-49	611,799	0	0
	TS2 (May-Jun)	542,233	1,292	-2,577	620,408	12	-96	439,504	0	0
	TS3 (Jul-Sep)	290,418	1,308	-2,524	351,680	1	-53	234,868	0	0

*Footnotes: Washington abundances correspond with Council NOF area, Oregon abundances correspond with OR coastal waters (Cape Falcon, OR to Horse Mountain, CA), and California abundances correspond to all waters south of Horse Mountain, CA.

Three Alternatives (example)

- And qualitatively compare Each Alternative for effects to SRKW
- Pg 71:

Table 4-6. Table capturing summary of alternative comparisons for effect to SRKW (+ means increase in protections/improvements for the whales; = means no change in protections/improvements for the whales).

SRKW Protections	Alt. 1	Alternative 2 compared to Alternative 1							
Threshold implementation	X	+ Threshold 966,000, lower threshold w/ potential to trigger less often compared to Alt. 2; less restrictive than Alt. 3 more restrictive than Alt. 1							
Responses enacted		1.a	2	3a, 3b	5a	5b	6a	6b	6c
Reduced spatial/temporal overlap	=	=	+	+	+	+	+	+	=
Increased chinook salmon abundance	=	+ =	+ =	=	=	=	=	=	=
Increased chinook availability NOF	=	+ =	+	+	=	=	=	=	=
Increased chinook availability SOF	=	=	=	=	+	+	+	+	=
Support nutrition/body condition/fitness	=	+	+	+	+	+	+	+	=

Numeric values represent the responses enacted under each Alternative, described in detail in Section 2.3.1.

1.a. NOF non-treaty Chinook quotas	5.a SOF delay OR troll until April 1	6.a Closure of Monterey Oct 1 – March 31
2. Spring Quota split	5.b Closure of KMZ Oct 1 – March 31	6.b Extend Klamath Control Zone 6 miles seaward
3.a, 3.b NOF control zones closures	5.c Closure of Cape Falcon to Cape Meares Jan 1 – June 15	6.c Closure other control zones
4. NOF season time adjustments		

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Take Home

The report indicates when comparing the FMP current framework to historical catches it is more responsive to Chinook abundance and SRKW needs than past fishery regimes.

NMFS is still concerned about years of low abundance in NOF waters which have coincided with poor Chinook survival and low SRKW viability.

NMFS supports a NOF abundance threshold based on multiple continuous years of low Chinook salmon abundance and poor/mixed SRKW status. We also support management responses to low abundance conditions that would occur throughout the EEZ to consider the temporal and spatial needs of the whales based on the Workgroup's findings.

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